

## Revision of the genus *Maculacris* C. Willemse, 1932 (Orthoptera, Acridoidea)

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**ABSTRACT.** — The genus *Maculacris*, known from the Philippine Islands, is redefined. Two species are attributed to the genus, viz. *flavomaculata* C. Willemse, 1932, and *obtusa* spec. nov. There is a conspicuous sexual dimorphism and dichromatism. *M. virescens* C. Willemse, 1939, proved to be synonymous with *flavomaculata*. The genus does not fit any of the recently recognized higher taxa of the Acridoidea and is allocated among the ungrouped genera of Catantopidae.

### INTRODUCTION

The genus *Maculacris* was proposed for two taxa, known each from the opposite sex. Material at my disposal at this moment reveals that sexual dimorphism and dichromatism is conspicuous. Among this material two species can be recognized. One of these agrees with both previously described taxa, which apparently are synonymous. The other species is described as new.

The following abbreviations of institutions are used in the text:

ANSP, Academy of Natural Sciences of Philadelphia

BPBM, Bernice P. Bishop Museum, Honolulu

CW, Collection of C. Willemse, Natuurhistorisch Museum, Maastricht.

#### *Maculacris* C. Willemse, 1932

*Maculacris* C. Willemse, 1932: 153; 1939: 72; 1956: 12, 194; F. Willemse, 1966a: 38. Type-species: *Maculacris flavomaculata* C. Willemse, 1932.

#### Redescription

♂, small, slender. Integument of head and thorax shiny, face and pronotum slightly punctate. Antennae filiform, as long as body. Fastigium verticis from above more or less triangular, apex from acutely to obtusely rounded, without raised margins, separated from remaining of vertex by shallow, transverse impression, in profile horizontal, extending slightly beyond level of eye, forming acute angle with face. The latter more or less reclinate. Frontal ridge distinct in upper two thirds, about parallel, narrow, shallowly sulcate. Lateral facial keel obtuse. Eyes oblong-ovoid, strongly convergent anteriorly, interocular distance about half as wide as width of scape.

Pronotum with dorsum cylindrical, without keels, slightly saddle-shaped, anterior margin convex, posterior margin straight or very slightly convex, length of head and pronotum about equal; lateral lobe longer than high, lower margin strongly sinuate, anterior angle obtuse-angulate, anterior margin obliquely slanting upwards, posterior angle about rectangular, posterior margin moderately sinuate; four transverse sulci of moderate depth, first one laterally only, parallel and close to anterior margin, second one dorsally only, third and fourth sulci both dorsally and laterally, metazona about as long as posterior third of pronotal length. First episternum with anterior margin convex, lower margin concave to sinuate. Prosternal process narrow, strongly compressed antero-posteriorly, widening apically, apex truncate with ventral side slightly flattened. Mesosternal lobes slightly wider than long, inner margins convex, interspace wider than long. Metasternal lobes touching each other.

Fore wing short, reaching about hind margin of second abdominal tergite, touching or slightly overlapping each other dorsally, about one and a half as long as wide, margins moderately convex, apex widely rounded to almost truncate, much archedictyon, longitudinal veins almost,

transverse ones quite indistinct. Hind wing vestigial. Tympanum large, open, ovoid. Legs with claws strong, pulvillus large. Hind femur slender, keels smooth, knee lobes angulate, not spined, reaching far beyond tip of abdomen. Hind tibia as long as hind femur, margins rounded, with 6—7 inner and 8—9 outer spines, internal and external apical spines included. Hind tarsus half as long as hind tibia, third segment almost as long as first and second together.

Hind margin of last abdominal tergite without furculae. Supra-anal plate triangular with a shallow, median, basal sulcus and obtuse, lateral, basal projections, apex slightly protruding and obtusely rounded. Cercus simple, conical, reaching tip of supra-anal plate. Subgenital plate short, conical, apex obtuse.

Phallic complex (fig. 1—7) small. Epiphallus completely divided, widely bridge-shaped, small ancorae, plate-like lophi. Oval sclerites present. Cingulum with U-shaped zygoma and apodemes. Cingular rami narrow, ventro-posteriorly recurved and there merging with sheath of penis. Pair of cingular valves, anteriorly joined by bridge and arch, the latter symmetrically tuberculate dorsally. Basal and apical penis valves flexured. Tips of apical penis valves expanded laterally, merging with sheath of penis.

General coloration black with distinct yellow pattern.

♀, larger and less slender than male. Integument less shiny, face and pronotum more punctate. Antennae shorter, just more than half of body length. Fastigium verticis wider, interocular distance about as wide as width of scape. Frontal ridge usually not at all sulcate, face less reclinate. Pronotum less or not saddle-shaped, anterior margin less convex, posterior margin straight to slightly concave; lateral lobe not quite as long as high, sulci less deep. Metasternal lobes almost touching each other. Fore wings not overlapping, usually even not touching each other dorsally, apex truncate to slightly concave. Supra-anal plate tongue-like, cercus short. Ovipositor valves straight, margins smooth, apices recurved and hooked. Subgenital plate about three times as long as wide, hind margin simply triangularly produced in the middle.

General coloration uniformly green.

Distribution. Philippine Is.

Discussion. Remarkable is the strong sexual dimorphism and dichromatism. The genus does not fit in any of the recently recognized highertaxa of the Acridoidea. It is allocated among the ungrouped genera of Catantopidae.

#### Key to the species of *Maculacris*

- a. Fastigium verticis acutely rounded apically, face rather reclinate (♀, fig. 8—9); lower posterior angle of pronotum distinctly produced posteriorly (♀, fig. 8); lophi of epiphallus larger, in profile strongly convex (fig. 1); male with a median yellow spot in prozona of pronotal dorsum (fig. 12) . . . . . *flavomaculata* C. Willemse
- b. Fastigium verticis obtusely rounded apically, face less reclinate, (♀, fig. 10—11); lower posterior angle of pronotum less produced (♀, fig. 11); lophi of epiphallus smaller, in profile weakly convex (fig. 2); male without that yellow spot (fig. 14) . . . . . *obtusa* sp.n.

#### *Maculacris flavomaculata* C. Willemse, 1932

(fig. 1, 8—9, 12—13)

*Maculacris flavomaculata* C. Willemse, 1932: 153, pl. 12 fig. 8; Sjöstedt, 1932: 33; C. Willemse, 1939: 73; 1956: 196; F. Willemse, 1966a: 38; 1966b: 67.

*Maculacris virescens* C. Willemse, 1939: 73; 1956: 195; F. Willemse, 1966a: 38; 1966b: 67. SYN.NOV.

Material studied. Types of *M. flavomaculata*: ♂ holotype, labelled: Surigao Mindanao, *Maculacris* n.g. *flavomaculata* n.sp. det. C. Willemse, holotype; paratypes: Surigao Mindanao (1 ♂); Philippines Dinagat (1 ♂), both with appropriate identification and type-labels (CW).

Holotype of *M. virescens* (♀), labelled: Mindanao Surigao, *Maculacris virescens* n.sp. det. C. Willemse, holotype (CW).

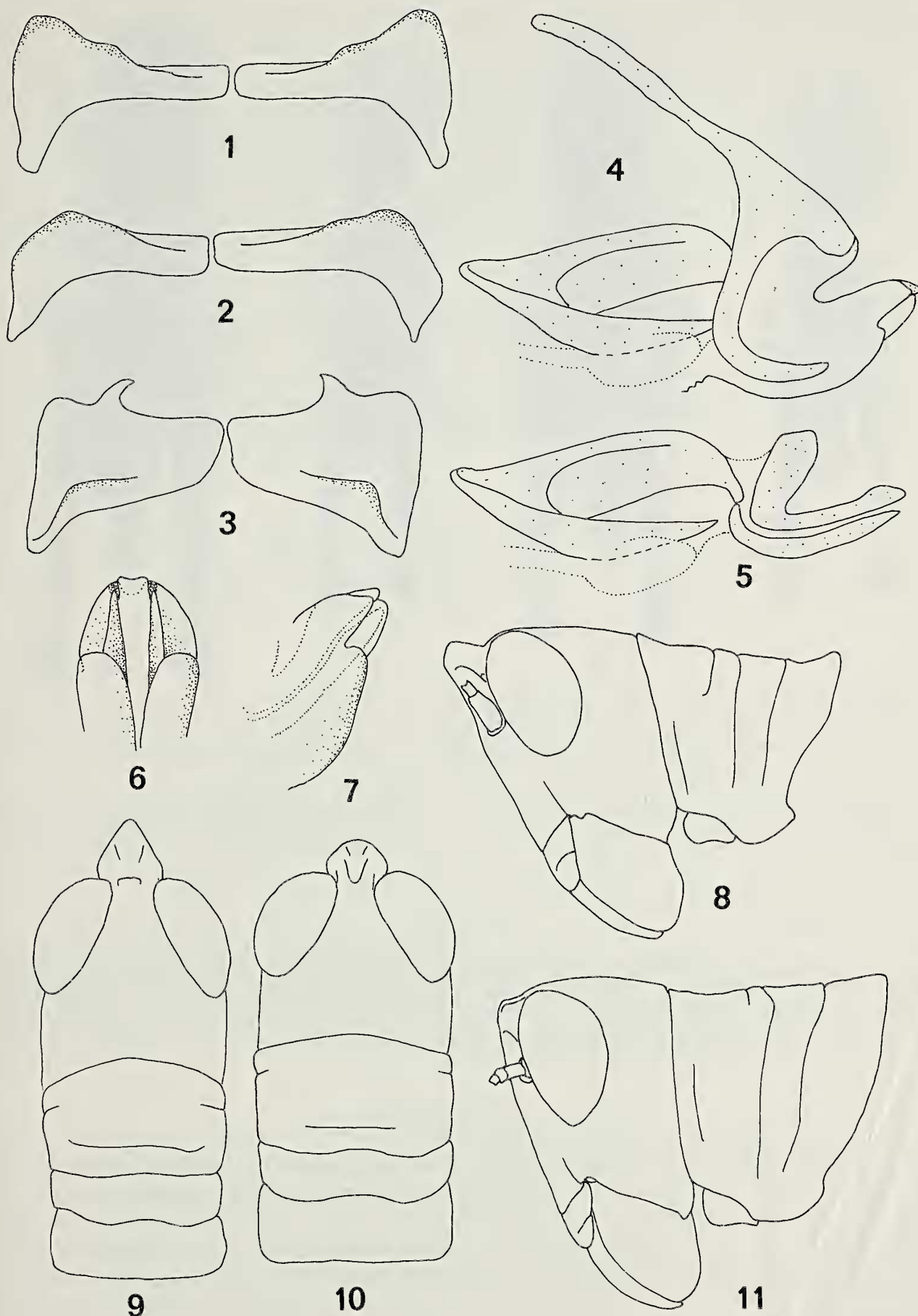


Fig. 1—3. *Maculacris* species, male, epiphallus (paratypes): 1, *flavomaculata* C. Willemse, posterior view; 2, *obtusa* sp.n., posterior view; 3, same, dorsal view. Fig. 4—7. *Maculacris obtusa* sp.n., male, phallic complex (paratype): 4, lateral view, ectophallic membrane partly removed; 5, endophallus, lateral view; 6, apex of phallus, posterior view; 7, same, lateral view. Fig. 8—11. *Maculacris* species, female, dorsal and lateral view of head and pronotum: 8—9, *flavomaculata* C. Willemse (topotype); 10—11, *obtusa* sp.n. (paratype).

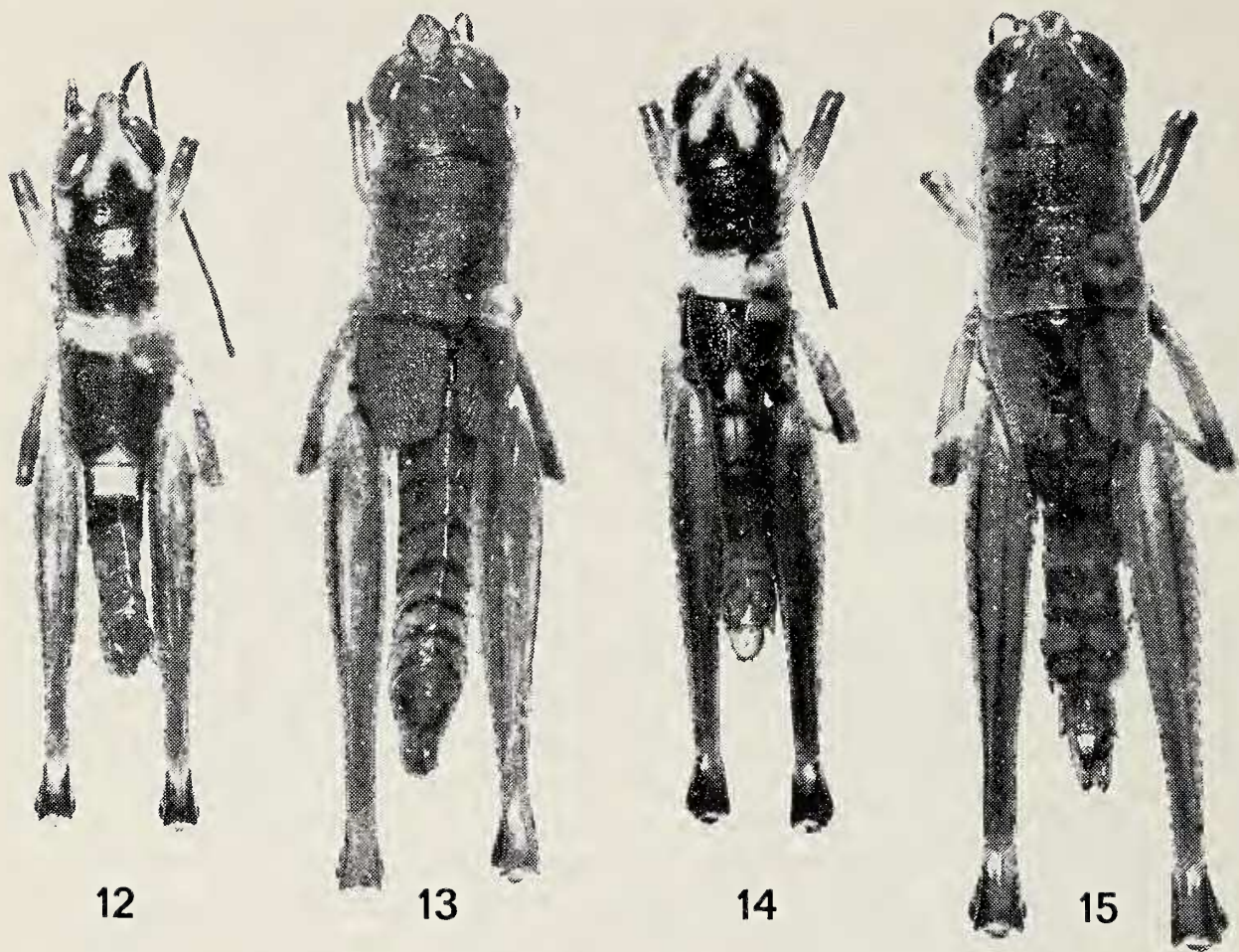


Fig. 12—15. *Maculacris* species, male and female, dorsal view: 12—13, *flavomaculata* C. Willemse (topotypes); 14—15, *obtusa* sp. n. (holo- and allotype).

Additional material: Surigao Mindanao (2 ♂ 1 ♀, ANSP); Surigao Mindanao Baker (2 ♂ 2 ♀, ANSP); Mindanao, Agusan, S. Francisco, 10 km SE, 5.IX.1959, L. Quate & C. Yoshimoto (1 ♂, BPBM).

#### Redescription

♂, ♀. Fig. 12—13. Fastigium verticis narrowly triangular, apex acutely rounded (♀, fig. 9). Face strongly reclinate (♀, fig. 8). Anterior margin of pronotum distinctly convex, posterior margin of lateral lobe distinctly sinuate, lower angle distinctly produced (♀, fig. 8). Lophi of epiphallus comparatively large, in profile strongly convex (fig. 1).

#### Coloration

♂. General colour black with yellow spots. Antennae from blackish to castaneous brown, scape suffused with yellow and green, tip of flagellum pale brown. Head shiny black, along anterior and dorsal margins of eye a yellow stripe, extending over fastigium verticis. Behind eye a yellow spot. Clypeus yellowish, upper part of mandible yellow. Thorax black, pronotum with median yellow spot in prozona of dorsum and metazona yellow except for lower lateral part. Fore wing blackish brown. First abdominal tergites blackish laterally, yellow dorsally, remaining of abdomen blackish green. Legs bluish green, coxae and femora basally suffused with yellow. Hind femur with fish-bone pattern and outer upper carinula dark olivaceous green, lower inner area dark blue, knee black. Hind tibia blue, spines black.

♀. General colour olivaceous or yellowish green. Antennae dark brown, scape and tip of flagellum as in male. Fastigium verticis suffused with dark green. Apical parts of labrum and mandible, and pro-, meso- and metasterna laterally dark bluish green. Fore and middle femora pale reddish, apically green, tibiae and tarsi green. Hind femur from yellowish to reddish green, fish-bone pattern and upper outer carinula dark olivaceous green, lower inner area dark blue,

hind knee with crescents castaneous brown and lobe pale yellow with margins dark. Hind tibia blue, hind tarsus green, spines black.

Measurements (length in mm): body ♂ 14.9—15.4, ♀ 19.3—22.9; pronotum ♂ 3.0—3.5, ♀ 4.0—4.4; fore wing ♂ 3.0—3.2, ♀ 3.5—4.1; hind femur ♂ 10.1—11.0, ♀ 13.0—13.2.

Distribution. Mindanao: Surigao & Agusan; Dinagat.

Discussion. The species is well-defined as indicated in the key. The topotypical series at hand reveals clearly the conspecificity of the strongly differently colored male and female. Males and females agree completely with the types of *flavomaculata* (♂) and *virescens* (♀), so that the latter species falls as a junior synonym of *flavomaculata*.

*Maculacris obtusa* sp.n.  
(fig. 2—7, 10—11, 14—15)

Material studied. ♂ holotype, ♀ allo-, 1 ♂ 3 ♀ paratypes, labelled: Dagami Leyte, Mt. Lobi P.I., 21.VI. (holotype), 25.VI. (allotype), 25.VI. (1 ♀), 19.VII. (♀), 4.VIII. (1 ♀), 10.VI. (1 ♂) 1945, E. R. Helwig; Island Samar Baker (1 ♂ 2 ♀) (all ANSP).

#### Description

♂, ♀. Fig. 14—15. Differing from type-species as follows. Fastigium verticis widely triangular, apex obtusely rounded (♀, fig. 10). Face less reclinate (♀, fig. 11). Anterior margin of pronotum less convex, posterior margin of lateral lobe less sinuate and lower angle less produced (♀, fig. 11). Lophi of epiphallus smaller, in profile but weakly convex (fig. 3—4).

#### Coloration

♂. Yellow stripe along anterior margin of eye wider and longer, extending along ventral margin of eye. Postocular yellow spot lacking. Mandible completely black. Prozona of pronotum without yellow spot. Fore wing black. First abdominal tergites of similar color as remaining of abdomen, yellow dorsal coloration less distinct. Hind tibia black, at its base suffused with dark-green, hind tarsus blue.

♀. About similar to ♀ of type-species, but hind femur more uniformly dark-green and hind tarsus blue.

Measurements (length in mm): body ♂ 15.3—15.5, ♀ 20.2—22.1; pronotum ♂ 3.5—3.6, ♀ 4.2—4.4; fore wing ♂ 3.2—3.3., ♀ 4.2—4.9; hind femur ♂ 11.1—11.2, ♀ 13.0—13.3.

Distribution. Leytè, Dagami, Mt. Lobi; Samar.

Discussion. The species is well-defined as indicated in the key. The Samar male has the hind femur reddish instead of green but other characters agree with the topotypes. Apart from the difference of the lophi of the epiphallus, the phallic complex in both species (fig. 4—7) appears about similar.

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SCHMIDT-KOENIG, K., 1975, *MIGRATION AND HOMING IN ANIMALS*. No. 6 in de reeks „Zoophysiology and Ecology” pp. XII, 99, 64 figs, 2 tables, ca. 200 refs, subject index 5 kolommen. ISBN 3—540—07433—3; Springer, Berlin-Heidelberg-New York. Prijs (gebonden) DM 46,-.

Met dit boekje heeft de auteur een geslaagde poging ondernomen om in kort bestek een inleiding te schrijven over migratie en „homing” in het dierenrijk. De negen hoofdstukken zijn alle vrijwel identiek opgebouwd: ieder hoofdstuk gaat over één diergroep waarin migratie optreedt (achtereenvolgens Crustaceeën en spinnen, sprinkhanen, bijen, vlinders, vissen, amfibieën, reptielen, vogels en zoogdieren) waarbij eerst een korte beschrijving wordt gegeven van de prestaties die een groep levert, en daarna iets wordt gezegd over de resultaten die experimenteel onderzoek heeft opgeleverd.

Diepgaand kan een boekje van deze omvang niet zijn, en evenmin is het natuurlijk mogelijk om veel voorbeelden van migratie aan te geven. Zo vindt men in het hoofdstuk over vlinders slechts een terloopse opmerking over trekvlinders (alleen de inderdaad erg spectaculaire monarch wordt kort besproken). In dit verband is het jammer dat de literatuurlijst niet uitvoeriger is, en niet gemakkelijker toegankelijk gemaakt (bijv. door de literatuur te rubriceren). Het boekje geeft in een appendix een paar statistische technieken die een rol spelen bij het analyseren van trekbewegingen — gezien de elementaire aard van het boekje wat uit balans, maar toch wel handig.

Voor iemand die zich snel en gemakkelijk wil introduceren in de problematiek een aardig, zij het wat oppervlakkig, boekje. — W. N. Ellis.

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